WE CLAIM:

1. A test tap adapter for use in providing electrical measurements in a transformer bushing and arranged for extracting samples of gases dissolved in insulating oil present in said transformer bushing so as to determine presence of said gases in said insulating oil, said test tap adapter including a tap connector, a tubular runway axially disposed in said tap connector and having a portion extending outside said tap connector, said portion constructed to penetrate into said transformer bushing and to soak in said insulating oil, an insulated conductor mounted in said tubular runway along entire length thereof and having a free length for connection to a conductor provided in said transformer bushing, means for connecting an end of said insulated conductor opposite said free length to an electrical measurement means, and means for anchoring said test tap adapter to said transformer bushing through an opening provided therein, with said outside portion of said tubular runway inside said transformer bushing in contact with said insulating oil, wherein said test tap adapter additionally comprises a gas diffusing member of nonconductive material mounted over said outside portion of said tubular runway, gas permeable but liquid impermeable means covering said gas diffusing member and arranged to allow permeation of gases that may be present in said insulating oil towards said gas diffusing member, a gas storage chamber linked to said tap connector, in operative contact with said gas diffusing member and means to allow passive diffusion of permeated gases present in said gas diffusing member towards said gas storage chamber for determining the presence of gases in said insulating oil.

2. Test tap adapter according to claim 1, wherein said gas diffusing member is porous.

3. Test tap adapter according to claim 1, wherein said insulated conductor is a twisted-wire conductor.

4. Test tap adapter according to claim 1, wherein said tap connector comprises a longitudinally extending cylindrical member, said tubular runway being mounted in said cylindrical member.

5. Test tap adapter according to claim 2, wherein said gas diffusing porous member is cylindrical and shaped to fit over the outside portion of said tubular runway.

6. Test tap adapter according to claim 5, wherein said gas diffusing porous member is made of a polyethylene nonconductive material.

7. Test tap adapter according to claim 5, wherein the nonconductive material of said gas diffusing porous cylindrical member is made of polyvinylidene fluoride.

8. Test tap adapter according to claim 1, wherein said gas permeable but liquid impermeable means comprises a gas permeable membrane.

9. Test tap adapter according to claim 8, wherein said gas permeable membrane has a thickness between 20 and 120 microns.

10. Test tap adapter according to claim 8, wherein said gas permeable membrane is made of a nonporous polymer material.

11. Test tap adapter according to claim 10, wherein said nonporous polymer material comprises a copolymer.

12. Test tap adapter according to claim 11, wherein said copolymer comprises perfluoro-2,2-dimethyl-1,3-dioxole with variable amounts of tetrafluoroethylene.

13. Test tap adapter according to claim 12, wherein said perfluoro-2,2-dimethyl-1,3-dioxole is copolymirized with other fluorine containing monomers, namely vinylidene fluoride, chlorotrifluoroethylene, vinyl fluoride, and perfluoromethyl vinyl ether.

14. Test tap adapter according to claim 5, wherein said gas diffusing porous cylindrical member has a porosity of 10 to 30 microns.

15. Test tap adapter according to claim 14, wherein pores in said gas diffusing porous cylindrical member represent 30 to 50% of the volume of said gas diffusing cylindrical member.

16. Test tap adapter according to claim 5, wherein said tap connector has a forward end in contact with a rear end of said gas diffusing porous member, said forward end of said tap connector comprising a circular step, at least one flaring port extending from a face of said forward end through said circular step and arranged to communicate with said gas storage chamber.

17. Test tap adapter according to claim 16, which comprises a circular casing projecting from the opening of said transformer bushing and constructed to enclose said tap connector including said tubular runway and said gas diffusing porous member and to define said gas

storage chamber, and a test tap cover closing said circular casing and sealing said gas storage chamber.